WHAT IS CLAIMED IS:

1. A sensor comprising:

an insulating jacket having a hole that longitudinally extends through a portion of the insulating jacket; and

an outer metal shell that fits around and contacts the insulating jacket.

2. The sensor of claim 1 and further comprising an imaging structure located in the hole.

3. The sensor of claim 2 wherein the imaging structure includes:

an imager that collects photon information; and

a plurality of wires that carry the photon information and extend out of the hole.

4. The sensor of claim 2 wherein the imaging structure includes:

an imager that collects photon information;

a wiring substrate connected to the imager;

a plurality of wires connected to the wiring substrate that carry photon information and extend out of the hole; and

a rigid structure that contacts the wiring substrate.

5. The sensor of claim 3 wherein the imager includes a color imaging cell.

6. The sensor of claim 5 wherein the color imaging cell includes a vertical color imaging cell.

7. The sensor of claim 3 wherein the imager includes a black and white imaging cell.

8. The sensor of claim 2 wherein the insulating jacket further includes a channel that longitudinally extends through the insulating jacket.

9. The sensor of claim 3 and further comprising a conductive electrode having a first end and a spaced apart second end located in the channel, and

wherein the outer metal shell has a tip that curves up and around to be directly over the first end of the conductive center electrode such that a tip end of the tip is spaced apart from the first end of the conductive center electrode by a gap.

10. The sensor of claim 2 wherein the hole has an L-shape.

11. The sensor of claim 2 wherein the hole is substantially straight, and has an end region and a middle region that is wider than the end region.

12. The sensor of claim 9 wherein the hole has an L-shape and an opening lies adjacent to the first end of the conductive center electrode.

13. The sensor of claim 9 wherein the hole has a first opening and a spaced apart second opening that lie on opposite sides of an engine wall.

14. A method of optimizing the combustion in an internal combustion engine, the internal combustion engine having a combustion chamber and a sensor that extends into the combustion chamber, the method comprising the steps of:

detecting a light emitted inside the combustion chamber with the sensor; and

altering the operation of the internal combustion engine in response to the light.

15. The method of claim 14 wherein:

the light includes burned light that results from burning a substance in the combustion chamber of the engine, the substance having a plurality of components, the plurality of components having relative concentrations; and

the altering step includes altering the relative concentrations of the components in response to the burned light.

16. The method of claim 15 wherein:

the light includes spark light that results from a spark extending across a gap of a spark plug; and

the altering step includes altering a timing of the spark across the gap in response to the spark light.

17. The method of claim 15 wherein:

the light includes spark light that results from a spark extending across a gap of a spark plug; and

the altering step includes altering a waveform of the spark in response to the light detected from the spark.

18. The method of claim 14 wherein:

the light includes spark light that results from a spark extending across a gap of a spark plug; and

the altering step includes altering a timing of the spark across the gap in response to the spark light.

19. The method of claim 18 wherein:

the light includes spark light that results from a spark extending across the gap; and

the altering step includes altering a waveform of the spark in response to the light detected from the spark.

20. The method of claim 14 wherein the altering step includes altering a value timing in response to the light.